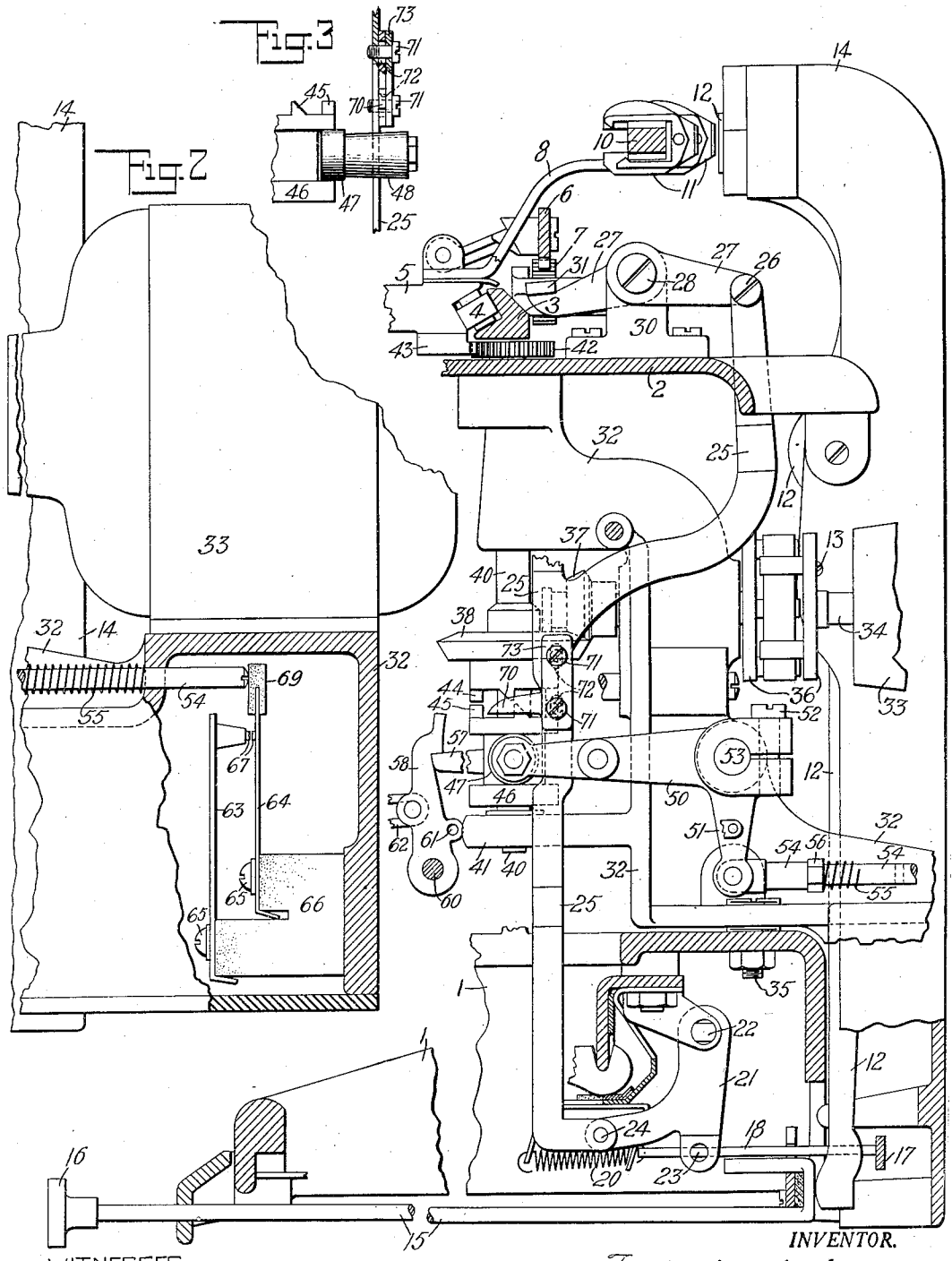
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TYPEWRITING AND LIKE MACHINE

Filed July 13, 1925



WITNESSES

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UNITED STATES PATENT OFFICE.

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TYPEWRITING AND LIKE MACHINE.

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This invention relates to typewriting and like machines, and more particularly to such machines when equipped with power mechansim for restoring the carriage and with tabulator mechanism for allowing a free run of the carriage in letter feed direction. In such machines unless provision is made to the contrary, certain difficulties may be encountered if the carriage return mechanism should be brought into operation at a time when a tabulator key is also operated, and the prinicpal object of the present invention is to provide a lock or connecting device between the two mechanisms so as to prevent simultaneous operation of the carriage return mechanism and the tabulator mechanism.

To the above and other ends the invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

One instance of the invention is illustrated in the accompanying drawing, in which

Figure 1 is a fragmentary front to rear vertical sectional view of so much of a typewriting machine of the kind mentioned above as is necessary to illustrate the invention.

Figure 2 is in the nature of a rightward extension of Figure 1, with parts in section.

Figure 3 is a fragmentary front view, partly in section.

The invention is shown applied to a Remington typewriter having attached thereto the electric carriage return mechanism shown and described in my application for Letters Patent for improvements in typewriting and like machines, filed February 6, 1925, Serial No. 7213, now Patent No. 1,567,590 dated Dec. 29, 1925. Except as hereinafter pointed out, the present machine is or may be identical with the one described in the said prior application.

The frame of the Remington typewriting machine comprises a base casting 1, which by corner posts supports a top plate 2 on which are mounted two carriage rails 3, the rear one being shown. Said rails by roller bearings 4 support and guide the carriage 5. This latter has pivoted thereto a feed rack 6 meshing with a feed pinion 7, which pinion is connected with the usual escapement mechanism, not shown. The carriage also has arms 8 rigid thereon, which arms support a tabulator column stop bar 10 having thereon a series of column stops 11, one of those shown in the drawing being in its forward inoperative position and the other projected to its rear and operative position. The denominational stops 12 consist of the upper ends of vertical levers pivoted at 13 in a frame 14 secured to the rear part of the typewriter frame. The stop levers 12 are operated at their lower ends by push rods 15 having keys 16 on their forward ends. The levers 12 operate a universal frame comprising a universal bar 17 and an arm or frame 18, normally held in its forward position by means of a spring 20. The frame 18 when it is slid rearward by the operation of a tabulator key, rocks a lever 21 which has a stationary pivot 22 and is pivoted to the frame 18 at 23. At 24 said lever is pivoted to a long link 25, which at its upper end at 26 is pivoted to a carriage release lever 27, which lever is pivoted at 28 on a bracket 30 secured to the top plate 2. The lever 27 carries a shoe 31 lying beneath the feed rack 6. The construction is such that when a tabulator key is operated, this link 25 is pulled down, the feed rack is lifted and the carriage is thereby freed for a run leftward until arrested by the stops 11 and 12.

The preceding is a brief description of the ordinary Remington typewriter equipped with a denominational tabulator, but it will of course be understood that these parts may be of any ordinary or suitable construction.

The electric carriage return mechanism comprises a power unit, the frame of which consists of a single casting 32. This casting comprises a box-like part projecting rearward from the rear shelf of the base casting 1 and having a flat top on which is detachably mounted any suitable electric motor 33 having a horizontal armature shaft 34. The casting 32 is secured to the base 1 by means including certain bolts 35. Said casting extends upward from said base, thence somewhat towards the front of the machine and thence again upward, projecting through a hole in the top plate 2. The armature shaft 34 is, by a flexible coupling designated generally as 36, connected with a horizontal shaft journaled in the upright part of the casting 32 and having a beveled pinion 37

on its forward end, said pinion meshing with a beveled gear 38 loosely mounted between collars on a vertical drive shaft 40. This shaft is journaled at its lower end in a bracket 41 of the casting 32 and at its upper part in the uppermost part of said casting, the shaft having a spur pinion 42 mounted on its upper end and meshing with a rack bar 43 suitably mounted on the underside of the rear rail of the carriage 5.

A clutch between the gear 38 and the drive shaft 40 comprises teeth 44 depending from the hub of the gear 38, and adapted to engage teeth 45 on a clutch member 46 adapted to be slid up and down on the lower square part of the shaft 40. This clutch is normally open. In order to control it the body of the lower clutch member 46 has a wide peripheral groove in which runs a roller 47 mounted on a hub or wrist pin 48 projecting leftward from the free end of one arm 50 of a bell crank having another arm 51 and having a split hub and a tightening screw 52 by means of which it is rigidly mounted on the right-hand end of a rock shaft 53 journaled in the casting 32. The depending arm 51 has pivoted thereto a rod 54 extending rearward through the wall of the casting 32, terminating as shown in Fig. 2 in a box-like base portion of said casting. A spring 55 is coiled about the rod 54 and compressed between the casting 32 and an adjusting nut 56 on the rod 54 with a tendency to rock the shaft 53 and to close the clutch.

The shaft 53 is held in its normal position with the clutch open by the following means: said shaft extends to the left-hand side of the machine where it is journaled in another casting and where it has rigidly mounted thereon a forwardly extending arm 57 which is normally engaged by a latch 58 pivoted at 60, and drawn into latching engagement by a spring connected thereto at 61. A link 62 extends to suitable automatic and manual means for tripping the latch 58, which if it be done will permit the spring 55 to close the clutch.

The circuit for the motor includes two conductors 63 and 64 inside the box-like part of the casting 32, said conductors being secured by screws 65 to an insulator 66. The conductors 63 and 64 are provided with contact points 67 which tend to come into contact by the resilience of the conductor 64 but which are normally held out of contact by the rear end of the rod 54 contacting with an insulator 69 on the upper end of the conductor 64. When the latch 58 is tripped and the spring 55 rocks the shaft 53, the circuit is closed at 67 and, the clutch being also closed, the carriage return mechanism comes into operation to draw the carriage back to the right.

The carriage return mechanism described in the said Patent No. 1,567,590 has considerable mechanism not necessary to be shown here, said mechanism including means whereby at the end of a return run of the carriage, the arm 57 is forced downward, opening the clutch and the circuit and being again held down by the latch 58; and said mechanism also includes various devices for controlling the operation of the mechanism, both automatically and manually. As far as the present invention is concerned, all of that mechanism may be of any suitable character, and in fact the entire power carriage return mechanism may be variously constructed.

In the particular carriage return mechanism here shown, if the carriage goes clear back to its normal point of arrest, the clutch and circuit become automatically opened, as above mentioned, and the operation of the mechanism ceases. If, however, the carriage were to be arrested by any means before it reached the regular point of arrest, then the clutch and circuit would not be opened, the motor would be stopped and the current running through it would be likely to injure it if it were allowed to run for any length of time. This sort of operation might also tend to strain the mechanism and be disadvantageous in various ways. Such an incorrect operation of the mechanism would occur if one of the tabulator keys 16 should be pushed in while the carriage return mechanism was in operation, and also in case the key was already being held in at a time when the carriage return key was operated to trip the latch 58. In that event the carriage might not go back to its regular point of arrest but might, on the contrary, be arrested by the tabulator stops 11, 12, with the injurious and disadvantageous results referred to. It is therefore the principal object of the present invention to guard against such an operation.

The specific form of interlock for the purpose shown in the drawing, comprises an arm 70 mounted on the link 25, which is included in the universal bar mechanism of the tabulator, said arm projecting over one of the parts that is operated by the spring 55. In the present instance this arm projects over the hub or lug 48 on the free end of the arm 50. It normally stands at such a height above said hub or lug as to permit the arm 50 to rise in case a tabulator key is not operated; but when a tabulator key is operated, the arm 70 is pulled downward over the hub 48 and will prevent the spring 55 from starting the motor even though the latch 58 may be tripped while the tabulator key is pushed in. Under the conditions mentioned if the tabulator key were to be released, then the arm 50 would rise and the motor could pull the carriage back to the right; but by that time the denomina-

tional stop 12 would have been returned to its inoperative position. If by any chance the key 16 should be pushed in while the carriage was returning toward the right, it would meet with resistance due to the fact that at that time the hub 48 would be in its elevated position. If by this resistance the operator was not warned that it was not the proper time to push the tabulator key but forced it in, the effect would be to project the column stop 12 as usual; but the downward motion of the arm 70 would rock the arm 50 and open the clutch and circuit so that the harmful effects of this incorrect operation of the tabulator would not occur.

It is preferable that said arm 70 be adjustable up and down to get it into the right position, and this can be effected in any suitable way. As here shown said arm is part of a piece of sheet metal, which is attached to the link 25 by two screws 71 passing through vertical slots 72 in said piece and threaded into the link 25. A piece 73 of sheet metal may be used as a double washer for the two screws. The slots 72 afford the desired up and down adjustment, which is secured by tightening the screws 71.

Various changes may be made in the details of construction and arrangement without departing from the invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting or like machine, the combination with a carriage, power carriage return mechanism and a tabulator, of means whereby an operation of said tabulator while the carriage return mechanism is in operation will disable said carriage return mechanism and stop its operation.

2. In a typewriting or like machine, the combination with a carriage, an electric motor, means actuated thereby for returning said carriage, and a tabulator, of means whereby an operation of said tabulator will break the circuit of said motor.

3. In a typewriting or like machine, the combination with a carriage, an electric motor, means actuated thereby for returning said carriage, and a tabulator including a key, of means acting to prevent current from flowing through said motor while said key is operated.

4. In a typewriting or like machine, the combination with a carriage, power carriage return mechanism including a clutch and a spring for closing said clutch, and tabulator mechanism including a key, of a device operated by said key and adapted to overcome said spring.

5. In a typewriting or like machine, the combination with a carriage, power carriage return mechanism including a spring operated part for bringing the power mechanism into operation, and tabulator mechanism including a series of keys and a universal member operated by each of said keys, of means whereby said universal member when operated acts in opposition to said spring to prevent or stop an operation of said power mechanism.

6. In a typewriting or like machine, the combination of a carriage; a tabulating mechanism including operating keys and tabulator stops; a normally quiescent electrical motor mechanism for returning the carriage; means for closing the motor circuit and energizing the motor at the end of the carriage travel, whereby the carriage may be returned to its first position automatically; and means connected with the tabulator keys for preventing closure of the motor circuit while any of the tabulator keys is held operated and a tabulator stop projected, whereby when the carriage arrives at the end of a line under the action of the tabulator mechanism said carriage is unable automatically to throw into operation the motor returning mechanism while any tabulator key is held actuated, thereby preventing automatic return of the carriage at this time and possible injury to or breakage of the tabulator stops or other part of the machine.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 3rd day of July, A. D. 1925.

FREDERICK A. HART.